

DOCUMENT RESUME

ED 334 438

CE 058 506

TITLE Basic/Technical Literacy Project. Final Report.
INSTITUTION White River Vocational Technical School, Newport,
AR.
SPONS AGENCY Arkansas State Dept. of Education, Little Rock. Div.
of Vocational and Technical Education.
PUB DATE Jun 90
NOTE 18p.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Basic Skills; Literacy Education; *Outcomes of
Education; Postsecondary Education; Program
Effectiveness; Program Implementation; Reading
Achievement; *Remedial Programs; *Remedial Reading;
Self Evaluation (Individuals); *Skill Development;
Study Guides; *Teaching Methods; Textbook Content
IDENTIFIERS White River Vocational Technical School AR

ABSTRACT

The Basic/Technical Literacy project at White River Vocational Technical School in Arkansas implemented a comprehensive curriculum to raise students' basic reading and technical literacy levels in their chosen skill area. During the project, master vocabulary lists for each skill area were developed, and self-test worksheets and study guides were constructed from the master lists. After students with reading deficiencies were identified, they were given compensatory instruction with their technical texts. Other adaptive techniques used included highlighting texts to improve skimming and scanning skills, audiotaping texts, and making minor modifications in instructional techniques used in technical theory classes. A guidebook was produced to augment the assimilation of the curriculum into all technical fields, and the project staff worked with local vocational-technical staff to implement the project into each school's curriculum. Statistics gathered from six schools that have initiated most of the project curriculum show increases in the students' reading levels and a better retention rate in their technical classes. Reading levels increased an average of one grade level, with some students exceeding three grade levels. Seventy-eight percent of the students involved in the project stayed in the technical class, and all students in the project improved their grades in the class. (Author/KC)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

FINAL REPORT

BASIC/TECHNICAL LITERACY PROJECT

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- ☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

D. Katz

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Conducted by
White River Vocational Technical School
Newport, Arkansas
Pamela K. Cicirello, Project Director

In Cooperation with
Vocational and Technical Education Division
Arkansas Department of Education
Little Rock, Arkansas 72201

Funded under the Provisions of
P.L. 98-524

June 1990

PROJECT ABSTRACT

PROJECT TITLE: Basic/Technical Literacy Project

PROJECT DIRECTOR: Pamela K. Cicirello, Coordinator of Student Services
White River Vo-Tech School
P. O. Box 1120
Newport, AR 72112
Phone: 501-523-8966

DURATION OF PROJECT: July 1, 1987 through June 30, 1990

PURPOSE

The BASIC/TECHNICAL LITERACY PROJECT was designed to implement a comprehensive curriculum that would raise students' basic reading and technical literacy levels in their chosen skill area. The goals of the project were as follows:

1. To develop reading activities to raise students' reading level at least one grade level.
2. To develop activities to raise students' level of technical literacy at least 30%.
3. To develop guides for technical instructors in techniques to help students with reading problems.
4. To develop a guidebook for instituting the program in other skill areas at White River Vo-Tech School and for other state vocational technical schools.
5. To develop a system to facilitate the articulation of the project curriculum into other Vo-tech schools through on-site monitoring and consultation.

PROCEDURE OF APPROACH

Master vocabulary lists for each skill area were developed, and the readability of the definitions were reduced. Worksheets and study guides were constructed from this master list. After students with reading deficiencies were identified, they were given compensatory instruction with their technical text. Other adaptive techniques utilized included: highlighting texts to improve skimming and scanning skills, audio-taping text, and minor modifications in instructional techniques used in technical theory classes.

A guidebook was produced from this project to augment the assimilation of the curriculum into all technical fields. The project staff worked with local Vo-tech staff in the implementation of the project into each school's specific curriculum.

CONTRIBUTION TO EDUCATION

Total implementation of this project seemed to allow students with reading problems who entered the Vo-tech system to complete curriculum requirements and graduate with the same technical literacy as the "better" students without diluting and without radical changes in the technical curriculum.

BEST COPY AVAILABLE

INTRODUCTION

Nationwide research has found that a large number of the students in upper-grade secondary and post-secondary cannot read or comprehend their content area text in their vocational education classes. The students may be literate, but unable to read technical reading assignments well enough to understand important concepts which in turn could cause the student to drop out of the vocational classes.

It has been determined that the needs of a certain group of students are being neglected--those students who may or may not be classified as disadvantaged or handicapped, but do lack specific basic reading skills as well as having decreased ability to learn technical vocabulary essential to succeed in their chosen skill area. The current Arkansas vo-tech system with all the other curriculum requirements, does not allow the students who have these major reading skill deficiencies enough time for specific instruction to overcome these deficiencies. Other special projects in the state of Arkansas have addressed basic skill remediation as part of the total vocational education curriculum, but have not targeted basic reading and technical literacy as a primary goal.

Early project statistics indicate that many students with reading problems do enter the Arkansas vo-

tech system. Many students with low scores on entrance tests do have major reading deficiencies. Attachment one shows a partial list of statistics gathered in the first year of the project. As indicated in attachment one, many of these students fail or drop out when they get behind in their technical classes. As shown, most students who have completed or are near completion have a higher reading level. Additionally, as shown in attachment two, the texts being utilized are at a much higher reading level than the students are actually reading.

Because of advancing technology, technical instructors are forced to cover more and more technical material in their curriculum. Even the more advanced students have a difficult time with this amount of material, and the slower students with reading problems have greater difficulty still.

Because of these problems, technical instructors cannot assign reading homework and expect students to understand the material. The instructor is forced to cover all the important facts in the classroom lecture which limits the amount of material that can be covered and lengthens the time needed to cover the material. With the text highlighted and taped as was done in the project, the slower students can do homework reading assignments, and the instructor can review only the essential facts in lecture. With the technical terms

introduced as was done in the project curriculum, the students can become familiar with the technical vocabulary and related concepts, and the technical instructor can spend more time teaching the technical skills.

The Basic/Technical Literacy (B/TL) project was designed to fill a gap for these students with reading problems--the gap that currently exists between the technical and related classes and the gap that exists between the student's reading level and the reading level of the text.

OBJECTIVES

The following is a list of the objectives of the project:

1. To develop reading activities to raise students' reading level at least one grade level.
2. To develop activities to raise students' level of technical literacy at least 30%.
3. To develop guides for technical instructors in techniques to help students with reading problems.
4. To develop a guidebook for instituting the program in other Arkansas vocational technical schools.
5. To develop a system to facilitate the

articulation of the project curriculum into other vo-tech schools through on-site monitoring and consultation.

PROCEDURES

DEVELOPING MATERIALS

Ideally, the texts, worksheets, and tapes were prepared prior to use with a group of students. The timeline (attachment three in the appendix) was developed with the ideal situation in mind. It was altered slightly when the project worked with students during the development stage of the program. All materials were developed around the targeted technical departments's text. No supplemental texts were added.

The process used in this project involved three parts:

1. self-testing handouts
2. color-coded, highlighted texts
3. audio-taped chapters of the text

READABILITY OF TEXTS

The readability of the technical texts was determined with computerized programs. The readability formulas in the computer program used did not exclude technical terms which gave the true reading levels of the texts. When the students were tested, the exact gap between the reading level of the students and the

readability of the text was determined.

THREE PARTS OF THE PROCESS

Worksheets. The first part in the over-all procedure was to develop handouts for the students to test themselves. The readability level of the glossary definitions was lowered. Care was taken to decrease the readability level without changing the basic context of the definition.

After the glossary definitions' reading level was reduced, the chapters where the terms are first introduced was determined and a list of terms for each chapter was developed. Test developing software was used to develop pre- and post-tests and self-checking chapter worksheets for the glossary terms.

The self-testing handouts were used as the student covered the chapter in his technical class. This self-testing technique allowed immediate feedback. The handout was made by marking the correct answers with a pink water based highlighter and placing the handout inside a red college theme binder (acetate type). The red binder effectively screens-out pink water-based highlighter pens. When placed inside the red cover, the correct answer is not visible. Students could quiz themselves and immediately check the correct answer. This technique was also developed for the student to review a parts breakdown diagram.

A computer software package was used also to prepare crossword puzzles for the technical terms.

Highlighted texts. Many students have poor reading comprehension, and must work harder to ascertain the most basic facts from the textbook. These students have difficulty picking out the main ideas of chapters and other important information that is likely to appear on tests. They have not learned to anticipate the types of questions that a teacher may ask. They also may be overwhelmed with the amount of material on the page of a technical text, especially if it is in small print. One technique to aid these students is color-coded, highlighted texts.

Color-coded highlighting allowed the poor reader to find the essential information while he was reading the text. All the important information was highlighted. The volume of material to be studied was reduced, which reduced the frustration of the poor reader, as well as, aided in the development of skimming and scanning skills. All terms defined inside the text material were highlighted in blue. A pink highlighter was used to highlight the in-text definition. Yellow was used for highlighting important facts. This was usually the answers to test questions, chapter questions and other critical information.

Audio Taping. Some students retain material better audibly. All students retain more when materials are presented in ways that allow them to use as many senses as possible.

Taping parts of the technical text for the student helps the student overcome many reading deficiencies. It allows the student to hear technical terms pronounced as they are read. It helps the student regulate reading speed and develop a better reading "flow". Taping also allows the student to see how punctuation is used as pauses or conclusions. It reinforces the worksheets and teacher lectures by allowing the student to see the technical terms being used in context. Reading along with the audio tape improves reading level, in general. Statistics gathered showed students can improve their grade level in reading as much as two grades by adopting this technique. It is recommended that the tapes always be used with the text. Otherwise, the usefulness of reinforcing the student's reading and pronunciation skills is voided.

STUDENT TESTING

All students in the targeted class were tested for basic reading skills as early in the school year as possible. This not only helped to clarify which students should be placed in the project curriculum, but also gave the technical instructor some very needed

feedback as to the capabilities of his students without having to wait until they start failing tests.

Students were given comprehensive reading tests to determine specific reading deficiencies. They were tested on decoding/pronunciation skills, reading in context, and reading comprehension.

WORKING WITH STUDENTS

Another aspect of the curriculum that was utilized was individual student instruction. This was accomplished with the aid of a reading specialist or tutors who worked with students on pronunciation and decoding skills as well as comprehension problems. Also, specific times were assigned during the student's regular school day for students to listen to tapes and complete worksheets. Time was spent teaching the student how to look up answers to chapter questions and test questions. The low-level students involved in the project had great difficulty developing this skill.

ADAPTIVE TECHNIQUES

After the reading tests were completed and after the project staff worked with the students, the B/TL staff made specific recommendations to the technical instructor.

These recommendations were based on each specific student's needs and capabilities and aided the technical instructor in preparing teaching methods and materials.

EVALUATION DESIGN AND RESULTS

The B/TL Project was originally designed as a one school project to span the 1987-88 school year. After testing the project curriculum at Foothills Vo-Tech in Searcy for that year, it was decided that the techniques and materials developed would be distributed to all twenty-four post-secondary technical schools in Arkansas. While at Foothills Vo-Tech, project curriculum materials were prepared for four targeted technical departments.

In the 1988-89 school year, the project was moved to White River Vo-Tech in Newport and three additional departments were targeted. Over the last one and one-half years of the project, the curriculum materials have been demonstrated and distributed to all of the remaining Vo-Tech schools in the state. All of these remaining schools have targeted a technical department and are in various stages of development in designing project materials for their specific situations. Records containing names of each school contact person and the targeted department have been maintained for distribution. This will aid in sharing of project materials throughout the Vo-Tech system.

Over the three years of the project, all of the project objectives have been met. Materials have been produced and techniques tested at several schools. The

guide book was prepared after the first year and was distributed to each Vo-Tech school as were the other materials developed through the project.

Statistics gathered from the two original schools and four other schools that have initiated most of the project curriculum show increases in the students' grading levels and a better retention rate in their technical classes. The reading levels increased an average of one grade level with some students exceeding three grade levels. Seventy-eight percent of the students involved in the project were retained in their technical class. All of the students improved their grades in their technical class. The evaluations completed by the technical instructors and students were all positive.

In many cases where the project curriculum may not have been adopted in its entirety, components of the methods and materials used in the curriculum have been utilized by programs and/or students. Several students involved in the project, on their own, have started highlighting their technical texts and making audio tapes for later review.

CONCLUSIONS AND RECOMMENDATIONS

Vocational instructors will as always have students with varying levels of academic ability. The vocational

system must find ways to deal with the lower level students entering the technical classrooms without diluting the content of the subject matter. These methods and materials developed in the Basic/Technical Literacy Project, if used simultaneously, seem to be one way to circumvent this dilemma.

The curriculum adapts to any subject or any school situation. It is relatively cost-effective because very few additional materials are needed to implement the curriculum. The majority of students involved in the project not only improved their grades and were retained in their technical class, but also seemed to develop better study skills and more confidence. The technical teachers seemed to like the project because it allowed them to cover more material faster.

The curriculum seems to adapt best to a library situation with the materials distributed through a central person. It is recommended that the materials be supplemented with some one-on-one tutoring. It is also recommended that the students be guided in developing their own study materials with highlighted texts and tapes so that they are "weaned" from the project as early as possible.

The project curriculum cannot solve all reading problems encountered in today's students. It was found that very low level students that were reading well below the readability level of the text did not make

significant enough progress to be retained in the technical class. Also realistically, the project curriculum cannot teach non-readers to read.

What the techniques and materials developed in the Basic/Technical Literacy Project can do is help the marginal students that "fall through the cracks."

Attachment 1

DEPT COMM 1 BRSW 1 SAWR 1 SACMP 1 ENROLLED BRSW 2 SAWR 2 SACMP 2 DIPLOMA

MS	69								
MS	72	11+	11+	11+					HS
MS	72	11+	11+	11+					HS
MS	72								HS
MS	83								
MS	42								
MS	73	10	9	9					HS
MS	46	7	7	7	YES	7	8	8	HS
MS	69								
MS	68	10	10	10					HS
MS	58	8	9	9	YES	9	10	10	HS
MS	44	8	9	9	YES	9	9	9	HS
MS	85	10	10	10					HS
MS	90	11+	11+	11+					HS+
MS	77	11+	11+	11+					HS
MS	44	7	8	8		8	9	9	HS
MS	77								
MS	42	7	8	7	YES	7	8	8	HS+
MS	92								
MS	76								
MS	57	7	7	7					HS
MS	62	11	11	11					HS
MS	70	10	10	10					HS
MS	72	11	11	11					GED
MS	*	8	9	8					GED
MS	57	10	10	10					HS
MS	*								
MS	85	11	11	11					HS
MS	73								
MS	60	9	9	9					HS
MS	71								
MS	73	10	10	10					HS
MS	75	10	10	10					HS
MS	60	9	9	9					HS
MS	76	11	11	11					HS

LEGEND:

- | | |
|--|------------------------|
| 1. Department - MS - Machine Shop | 6. Enrolled in Project |
| 2. Communications Entrance Test Scores | 7. Post-Test |
| 3. Burns & Roe Sight Words Assessment | 8. Post-Test |
| Grade Level (1-11) Pretest | 9. Post-Test |
| 4. Sucher Allred Word Recognition | 10. Type of Diploma |
| Grade Level (1-11) Pretest | |
| 5. Sucher Allred Reading Comprehension | |
| Grade Level (1-11) Pretest | |

*No scores available at present.

Attachment 2

READABILITY OF TECHNICAL TEXTS *

MACHINE SHOP TEXT:

READABILITY LEVEL:

MACHINING FUNDAMENTALS

John R. Walker

1981 Copyright

12th grade

AUTO BODY TEXTS:

TOTAL AUTO BODY REPAIR, Second Edition

L. C. Rhone, H. David Yates

1983 Copyright

12th grade

TOTAL AUTO BODY REPAIR, Workbook

L. C. Rhone, H. David Yates

8th grade

* As determined by the Fry Readability Formula

Attachment 3

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Develop master vocabulary list	x---o											
Reduce reading level of vocabulary definitions	x---o											
Train volunteers to tape texts	x---o											
Highlight master texts	x---o											
Coordinate taping with volunteers	x-----o											
Catalogue tapes	x-----o											
Develop worksheet and study guides for students	x-----o											
Pretest students		x---o					x---o				x---o	
Highlight student texts		x---o					x---o				x---o	
Develop handouts for technical instructors	x---o											
Give handouts to technical instructors		x---o					x---o				x---o	
Work with students in reading		x-----o										
Staff conferences	x---o					x---o				x---o		
Post-test students					x---o					x---o	x---o	
Survey of program effectiveness by students					x---o					x---o	x---o	
Survey of program effectiveness by technical instructors					x---o					x---o	x---o	